# THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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## THE KENNEL CLUB AND THE VETERINARY PROFESSION.

A certain amount of doubt is always attached to an uncorroborated assertion appearing in a single newspaper, especially if its details are vaguely stated. We cannot, therefore, accept the account which we print elsewhere of the Kennel Club Committee's action towards two veterinary surgeons without some reservations: but it certainly looks, upon the face of it, as if the veterinary profession had received a great and unjustifiable slight. So far as we can gather the facts, it seems that two veterinary surgeons at a recent large London dog show rejected two dogs belonging to one kennel on account of skin disease, that the exhibitor complained to the Kennel Club with respect to one dog only, and that the Kennel Club Committee—apparently not choosing to recognise the obvious bearing of the second dog upon the case—upheld the complaint. We do not know the Committee's reasons, but we may suspect that the personal influence of the exhibitor or his friends was not without weight.

Our contemporary suggests that large dog shows will become a "hotbed of canine disease" unless the Kennel Club Committee support the decisions of veterinary surgeons. Large dog shows, crowded as they are with dogs and dog fanciers from infected kennels, are really hotbeds of infection already; but they would certainly become much worse were visibly affected or suspicious dogs allowed to be benched. Veterinary surgeons alone have prevented that in the past, and their task has been neither an easy nor a pleasant one. It is responsible and difficult at the best; it may mean offending a client; and it is often rendered more harassing by the voluble abuse of disappointed exhibitors, perhaps delivered before a large audience.

If, in addition to all these disadvantages, a veterinary surgeon has to work under the constant fear of having his decisions over-ruled by the Kennel Club, the result will probably be that many practitioners will refuse to act at shows at all, and that those who do act will be afraid to inspect rigidly. For this reason the Kennel Club should uphold the decisions of veterinary surgeons unless the clearest proof is adduced that a rejection has been inexcusable. No evidence of any such proof appears in the case before us; all the evidence, on the contrary, suggests that the rejection was more than justifiable.

## THE "NATIONAL" EXCURSION.

We omitted to acknowledge last week the source of the two photographs of the "National" excursionists which we reproduced. The small group of teachers and examiners at Llanberis was taken by Prof. J. D. Stewart, of Sydney University, N.S.W. The larger group at Beddegelert was taken by Mr. R. S. Rowlands, of Abergele, President of the North Wales V.M.A. To both these gentlemen we offer our hearty, if somewhat belated, thanks for their kindness.

## MORTALITY AMONG PIGS.

During the last nine months one hundred dead pigs have been reported to the City veterinary officials. A post-mortem examination is made in each instance, and it is of some interest to note the ailments and diseases which account for this mortality.

It is the exception to find that the pig owner has called in veterinary aid, and the remedies and various concoctions used in the treatment of porcine ailments would make the subject for an interesting and amusing article. For example, the following drugs appear to be favourites in this district: comfrey, Spanish juice, antimony, black sulphur, syrup of poppies, Beecham's pills, chamomile tea, and castor oil.

In the majority of cases the piggeries are badly constructed, damp, and not provided with adequate drainage. Many folks seem to abhor the use of whitewash, and the writer feels confident that if more lime were used about piggeries there would be less disease. It is also advisable that pig owners should thoroughly disinfect the premises before the introduction of fresh stock.

At this time of the year flies are very troublesome while opening carcases, and the writer usually smears his arms and hands with an emulsion of sassafras oil and olive oil, which also has the advantage of preventing the nauseating smell of "dead pig" adhering to one's hands.

The pigs examined post-mortem were of all ages and sizes, but the majority could be classed as "wrecklings" or "Rutlands." The lesions found were as follows:

| | | | |
|---|---|---|---|
| Tuberculosis | 22 | Strangulated hernia | 2 |
| Pneumonia | 16 | Anthrax | 2 |
| Enteritis | 7 | Pleurisy | 2 |
| Swine erysipelas | 6 | Gastritis | 2 |
| Swine fever | 5 | Endocarditis | 1 |
| Suffocation | 5 | Bacterial necrosis | 1 |
| Ascites | 4 | Metritis | 1 |
| Pulmonary congestion | 3 | Epilepsy | 1 |
| Cirrhosis of liver | 3 | Peritonitis | 1 |
| Verminous bronchitis | 3 | Hydrothorax | 1 |
| Internal hæmorrhage | 3 | Broken back | 1 |
| Pericarditis | 3 | Constipation | 1 |
| Rickets | 3 | Liver disease | 1 |

*Tuberculosis* was generally found to be advanced. It is most seen where the pigs have been fed on the third stomachs of diseased cattle—care not having been taken in the selection of the food. One frequently has occasion to examine post-mortem every member of a litter, and when tuberculosis affects all, the sow's mammary gland should be carefully inspected.

*Pneumonia* is usually of the lobar type, and the writer is inclined to consider that feeding pigs on steaming food affects the constitution, and the mischief appears to be done when theanimal returns to its damp bed.

*Enteritis* was in most cases associated with the presence in large numbers of Ascaris suillæ.

*Anthrax.* One of the cases examined by Mr. J. Spruell, D.V.S.M. (VICT.) possessed a spleen measuring 38½ inches in length. From external examination there was nothing in the two cases to make one suspect anthrax.

*Broken back.* In this case the 13th thoracic vertebra was found smashed.

*Bacterial necrosis* was found in the liver of a sucking pig. The organ was studded with degenerating centres from which films were made which aided diagnosis.

*Liver disease.* Under this heading I have placed one pig. Attached to the liver, stomach, spleen, and mesentery were very numerous yellow, pea-like sacs of pus. A medical pathologist who was interested in this case diagnosed the condition as portal pyæmia. Films were made and examined for the Ray fungus and Tubercle bacillus, but with negative results. It is probable that these small sacs were degenerated hydatid cysts.

W. J. YOUNG, F.R.C.V.S., D.V.S.M. (VICT.)

Sheffield.

## VOLVULUS, TWIST OF THE SMALL INTESTINE.

The accompanying photo, taken by my friend Mr. Jos. Pattinson, chemist, of Aspatria, is an excellent representation of volvulus or twist of the illeum portion of the small intestine of a 15-year-old Clydesdale mare. The animal had been a very successful breeder and a good worker, and was never known to have a day's sickness all her life.

The case occurred on the 24th June last; the mare had been at work the day before and was turned out into the grazing pasture for the night along with the other horses, she was brought in about 6 a.m. and had her usual feed of oats which she cleared up; about an hour after she was noticed to be pained, lying down and getting up. Her owner, Mr. T. Bouch, of The Sun Inn, Aspatria, thinking she had an attack of colic, gave her a colic draught which he had by him, but this gave no relief, other quack nostrums were used but without any effect, and at 1 p.m. I was called in, and found the poor brute in a very bad form, black wet with perspiration, which was running down her face and neck and over her hoofs, I watched her for some little time and then made a careful examination. Exploring the rectum with the hand, I found the large bowel displaced as it were, and pressed back into the pelvic cavity, the mare strained very hard against me on introducing my hand into the bowel; she was suffering great pain, getting up and down, rolling about and on to her back, and in this latter attitude she seemed to feel a little relief.

I may here state that whenever I have a bowel case, and should the patient roll on to the back with the legs up and against the wall, no matter what may be the position, I leave it alone as long as it keeps quiet and easy, and do not allow anyone to interfere, as I have a fancy that if there be a twist, loop or invagination of the bowel it will at times right itself by the animal balancing itself on its back and thus lying maybe for twenty minutes or even up to two hours, after which the beast will roll on to its side, get up, give itself a shake, and commence to eat. I have had cases that have recovered suddenly in this manner after so comporting themselves, which leads me to press this view. There is, however, nothing to equal abdominal trouble for the post-mortem to reveal "the errors of diagnosis."

I do not favour the idea that twists in the bowels of the horse are caused by rolling about; not all the rolling and tumbling in the world, at least to my mind, could produce a twist like the one in the photo. My idea is that they are formed by excessive spasm of the longitudinal and circular coats of the walls of the intestine pulling against each other as it were, accompanied by increased peristaltic action of the bowel, and when I meet with an acute attack of colic in the horse, I have the patient put in a field if possible and allow it to have its full swing at rolling.

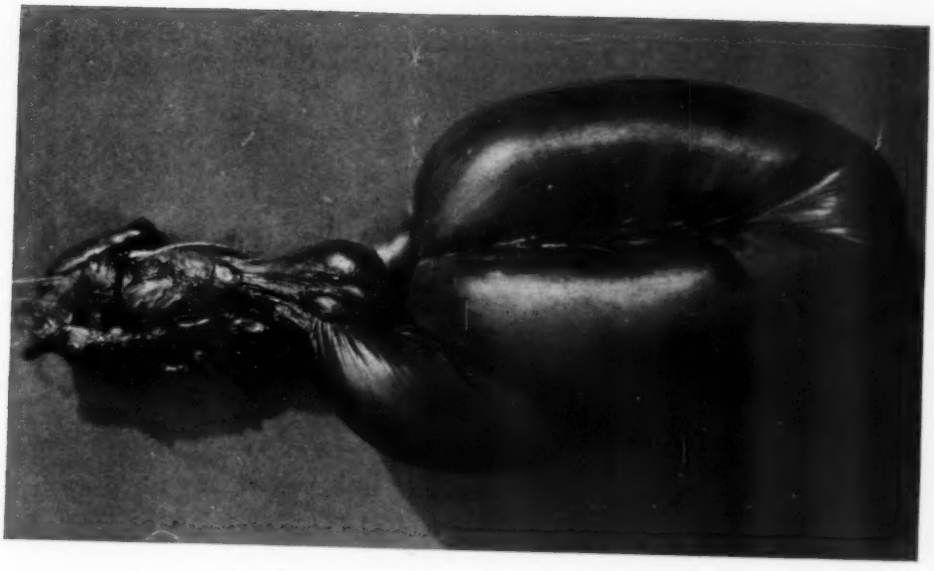
The mare in question, however, although frequently on her back, had very short intervals of rest, the most prominent symptom being that when the poor brute was on her feet she would set her hind legs back and apart, stick up her tail, and throw up her head as if about to urinate. I need not detail the treatment, suffice to say that sedatives per the mouth, skin, and rectum were used, the tympany that was present was liberated twice by the trocar and canula, but without any lasting effect. I told the owner early on that I was afraid the case would prove fatal, and that I suspected the mare was suffering from a twist, or knot, or some other lesion of the bowel, and at 10 p.m. the pulse began to run down and the mare commenced to wander round and round the box, stopping now and again, in fact presenting all the emblems of death, amaurotic eyes, heavy sighing, anxious expression on the face, cold clamy sweat and muscular tremblings. I left about midnight, and the mare succumbed at 2 a.m. The twist is so peculiar I thought it might interest some of the readers of *The Record* if you thought it worthy of production.

HENRY THOMPSON, M.R.C.V.S.

## MONSTROSITY.

Now that I have pencil in hand I may as well relate and send photo of a case of *Veterinary Obstetrics*, viz., a double-headed calf, *Dicephalus-bi atlanticus* (Fleming), with twisted or doubled spine.

On Wednesday, the 2nd inst., we were called to a cow that was unable to calve, the owner, a man who does a little veterinary work himself, had examined the animal and found that the calf had



VOLVULUS IN A CLYDESDALE MARE.

DICEPHALUS CALF.

*Notes by H. Thompson, M.R.C.V.S.*

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two heads joined together, and he could also find two feet. I accompanied my son, who now does most of this class of work, and ascertained that the calf was a monstrosity (see photo), not only had it two heads but the limbs were crooked and malformed, and the spine doubled upon itself. Ropes were put round the two fore fetlocks, and as luck would have it the cow was well relaxed and roomy, a strong rope was next put round the neck, passing over both heads, and another strong cord was fixed over the left hand head facing, as per photo, behind one ear and through the mouth; when this had been accomplished, the two feet were pressed back and down below the brim of the pelvic bones of the cow and traction laid on the ropes round the neck and head, but the feet rushed forward into the pelvic cavity, which was owing to their stiffness and malformation. As delivery did not seem possible this way, the heads were pressed back again and one of the legs pulled forward and as far out of the passage as possible, skinned, and pulled off by the shoulder, and the other fore leg treated in a like manner, and after the removal of the fore extremities the heads were again brought into the passage and heavy traction applied, the while manipulating with the hands the left hand head was delivered; there was nothing now but strong steady pulling when all of a sudden a loud crack was heard and the fœtus came away without any more trouble. On examining the calf afterwards I found that the back was broken in two, behind the shoulder, which accounted for the loud crack. The spine had been doubled on itself, with the malformed hind legs under the body, whilst the walls of the abdomen were open and the intestines outside.

The cow, which is a cross-bred shorthorn, stood the strain splendidly, and after lying for about a quarter of an hour, during which time she drank a pailful of cold water, she got up and commenced to eat some cut green corn, and I am pleased to say she is now going on alright, feeding, chewing the cud, and milking well. The operation occupied about one and a half hours. (Photo by Mr. J. Pattinson).

HENRY THOMPSON, M.R.C.V.S.

Aspatria.

## ABSTRACTS FROM FOREIGN JOURNALS.

### A CONTRIBUTION TO THE PATHOLOGY OF THE BURSA OF FABRICIUS.

The bursa or pouch of Fabricius is a single organ, which is present in nearly all birds, and lies outside the peritoneal sac between the rectum and the vertebral column. It encloses a cavity, which opens into the cloaca by means of a small canal. In aged birds the organ gradually diminishes in size, till finally it quite disappears. The physiology of the bursa of Fabricius is not explained, and very little has been observed of pathological conditions affecting it. Schautyr and Paukul, who now record three cases, remark that, so far as they are aware, only two instances of disease of the bursa have hitherto been recorded. Both these were instances of hydropsy of the organ.

The authors' first case was in a hen, whose age was not known, and in whom retention of an egg was diagnosed. During an attempt to relieve this by means of gentle pressure upon the abdominal wall, a bladder-like body of the size of a walnut, and covered with mucous membrane, suddenly issued from the anus. This proved to be an eversion of the pouch of Fabricius, which had arisen from the increase of abdominal pressure upon the organ resulting from manipulation. After the egg had been removed, the pouch was replaced in its normal position by means of pressure with the finger.

The second case was of a seven months old hen, which was said to have laid no eggs for some days, and in which the mucous membrane of the cloaca in the immediate vicinity of the anus was violently reddened. Palpation of the abdominal wall revealed the existence of a body the size of a hen's egg in the region of the pouch of Fabricius. The canal leading from the upper wall of the cloaca into the cavity of the pouch was dilated a little, and the little finger, when introduced into this, encountered a firm mass which was apparently a neoplasm. Small particles of this mass were brought to the air; they were yellowish-grey in colour and granular in appearance, and were easily crumbled between the fingers.

The hen was killed: and a post-mortem examination revealed all the organs normal, with the exception of the pouch of Fabricius. This was round-oval in shape and 2 inches by 1 1-5th inch in size. The surface was uneven in places. and partially united with the surrounding tissue. The walls ranged from 1-12th inch to 1-5th inch in thickness. The cavity contained a mass consisting of spongy lumps of a yellowish-grey colour, the whole being almost completely separated from the inner surface of the wall of the pouch, and thus easily detached from it. The mass showed, upon section, a more or less clearly apparent concentric structure of its more superficial portions, as if they were composed of single, thin, cup-shaped layers. The central portions, however, had a uniform finely granular appearance.

The authors give a somewhat detailed description of the results they obtained histologically, from which it appeared that the condition was a fibrinous-purulent inflammation of the pouch of Fabricius, with thickening of its walls by an increase of their connective tissue. Staphylococci were found within the mass composing the contents of the pouch; and in all probability the condition had arisen as a result of an infection from the cloaca through the canal connecting it with the pouch.

The third case was also that of a hen, the age of which is not stated. The history was similar to that of the previous case—viz., the retention of the egg; and palpation revealed the presence of a painless, oval, easily movable swelling above the cloaca and the rectum. The situation corresponded to the normal position of the pouch of Fabricius, and a

pathological alteration of this organ was therefore suspected.

The hen was killed, and subjected to post-mortem examination, which revealed no lesions in any organ except the pouch of Fabricius. This had a roundish-oval shape and was surrounded by loose fatty and connective tissue. It was 1-4th inch by 1, 2-5th in size. The surface was smooth, and in parts slightly uneven. In the place of the cavity of the bursa, its interior was completely filled with a tissue of yellowish-grey colour, which blended with the bursal wall without any indication of a boundary between them.

In this case, also, the authors enter, with some detail into the results of their histological examination. This showed that the mass occupying the cavity of the pouch of Fabricius consisted of elements which are characteristic of the lymphatic tissue, viz., lymphocytes and a reticulum. The reticulum was traversed by thin-walled injected vessels, and showed hæmorrhagic infiltrations in places; here and there, also, small necrotic centres were seen. The muscular portion of the wall of the pouch was still demonstrable; but nothing remained of the mucous membrane, which had been completely suppressed and atrophied by the newly-formed lymphatic tissue. The authors regard the condition as a hyperplasia of the follicles which are normally situated in the wall of the pouch of Fabricius.—(*Zeitschrift für Wissenschaftliche und Praktishche Véterinarmedecin.*)

W. R. C.

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## Some Atypical Cases of Rabies.

Owing to the extreme practical importance of the consideration of atypical symptoms in canine rabies, I am tempted to record the following cases:—

1. A pointer dog, 12 years old, went out with its mistress on the 4th May; on the 5th there was loss of appetite, vomiting, trembling of the feet; on the 6th and 7th the vomiting continued, and a flow of saliva appeared, food forcibly given was swallowed, the dog could not control the movement of his feet, going round and round for a few steps he fell to the right. On the 8th I was called in, and as I knew its name I called the dog as I entered the room, it approached me lame on its right legs, wagged its tail, and fell, but soon got up again, it went on in a semi-circle but fell after a few steps, again to the right. There was hemiplegia affecting both right legs and the lower eyelid, the eye appearing abnormally large in consequence, the neck was flexed to the right, the tongue was not under control and hung out, pressed by the teeth; and evidently on account of hemiplegia of the pharynx swallowing was difficult, the breathing was hoarse. On the 9th the dog was down, the paralysis had extended to the left legs and jaw which could not be closed, the left eye was normal, the dog tried to rise but could not. When spoken to caressingly it weakly wagged its tail, it trembled a great deal at a sudden noise or unexpected touch.

While being turned over it scratched the arm of its mistress. It could neither bark nor growl, it remained conscious till the night of the 12th, but at four in the morning it was dead.

Post-mortem examination showed empty stomach with patches of congestion, acute congestion of the brain.

A control rabbit inoculated with brain died of typical rabies in fifteen days.

2. Another case of rabies, the paralytic stage of which commenced as hemiplegia. The dog was brought to me as the owner thought it had had a blow on the head, but he did not know when or how, as it had not left the house during the previous day; when I approached the dog it attempted to bite me, although the owner assured me it was not at all savage: the head was turned to the right, and there was a swelling on the left side of the neck, the ear hung down and was powerless, the eye was widely open on account of paralysis of the lower eyelid, and the temporal muscle was swollen as if it had had a sharp blow, but was quite painless to the touch, the neck returned to the right if it was forcibly straightened. As the dog had been unwell for some days—restlessness, want of appetite, etc., I suspected rabies, and advised the dog being isolated, and waited till the next day. In the evening there was paralysis of the hind legs, and later also of the fore legs, complete loss of consciousness, a hoarse bark, biting at the breast walls, etc., and death in the morning.

Post-mortem examination showed the stomach containing splinters, straw, etc., hæmorrhagic patches, full bladder, the swollen parts of the head and neck not congested.

This was the second case of rabies I had seen which commenced with hemiplegia, and the grave significance of this symptom and the absence of others mentioned in the books at my disposal, causes me to call attention to it.

3. Pointer dog, sagacious and well trained, shivered as if cold after passing a cold night out of doors; there was pain in the chest, cough, painful swallowing, flow of saliva, and groaning; during the day the jaw dropped, and there was a thick discharge from the eyes, the pain in the chest decreased, but the jaw was paralysed till the seventh day of the illness, when the dog again was able to close it and there was no other paralysis. During the night of the eighth day the dog as usual woke its master and asked to be let out, it walked out easily and after relieving itself came in again, but in the morning there was tremor of the feet, and soon the dog lost consciousness, paralysis quickly seized the hind legs, and in the evening the front ones also. The dog was tied in a room, and it continually barked and howled. It bit every available object with fury, when a stick was offered to it it furiously snapped at it and broke it to splinters; this furious fit continued from the morning to the night of the ninth day, when it was destroyed as undoubtedly rabid.

I have noticed other cases where the paralysis has not commenced in the jaw and where the power of the jaw has returned. Many authors state that

the non-furious stage of rabies does not continue longer than two to three days, but my experience is otherwise, in my cases it has continued seven to eight days when the furious stage seldom reaches its limit.

I must explain that I am speaking only of those cases established by post-mortem examination and control inoculation; possibly age, size, and place of inoculation modify the conditions, yet I have never seen typical cases of rabies in which the non-furious stage has exceeded five days, and I have seen a two-month puppy dead in two days.

I have noted cases where the incubation period has exceeded 12 days, and in one a big St. Bernard it extended over four months.

For some years I have examined all dogs which have bitten human beings, and last year there was a severe outbreak of rabies in the town.

N. Foss, Govt. V.S., Ufa, Russia.

(From the Author's original esperanto.)

### Nut in a Dog's Intestines.

A small pet dog had suffered for two months from indigestion (vomiting, diarrhœa, loss of appetite, etc.). Then acute vomiting, accompanied by diarrhœa and pain, set in. The owner, a doctor, gave castor oil, which was returned after a few hours, also the water already drunk.

Diagnosis, stoppage of the intestine. Treatment primarilary directed to stopping the vomiting. Foss gave opium, and later calomel 0.08 (1½ gr. about) and an enema. The opium stopped the vomiting, and in the morning with the clyster came away a nut in its shell enlarged. The doctor and his wife remembered that the dog while playing two months before had swallowed a nut, which they thought it had passed long ago.

The dog made a good recovery.

(From the Russian Author's original esperanto).

F. E. P.

## NORTH OF IRELAND VETERINARY MEDICAL ASSOCIATION.

The usual quarterly meeting of this Association was held in Deveney's Chambers, North Street, Belfast, on Thursday evening, August 3rd, at 7 o'clock p.m. In the absence of the President, Mr. J. J. Ross occupied the chair, The following members were present: Messrs. John Ewing Johnston, Howard, McConnell, W. S. M. Smith, Henry Gibson, J. A. Thompson, J.P., and J. A. Jordan.

An apology for non-attendance was received from Mr. John George, Magherafelt.

The minutes of the previous meeting having been read were, on the motion of Mr. Gibson, seconded by Mr. Thompson, confirmed.

At this stage the President (Mr. F. W. Emery) having arrived took the chair.

The Secretary, in accordance with request, submitted a copy of certificate granted to Honorary Associates by the Veterinary Medical Association of Ireland, kindly lent by the Hon. Secretary of that Association.

Mr. Thompson moved, and Mr. Ross seconded, that the Sub-Committee already appointed to take charge of this matter be authorised to provide copies of a somewhat similar certificate for this Association, and that they be also authorised to select and order an official seal for the Association. Passed.

It was unanimously agreed that Messrs. J. A. Thompson and Jordan be requested to represent the Association at the forthcoming Congress of the Royal Institute of Public Health to be held in Dublin.

Mr. J. Ewing Johnston, in accordance with notice, moved that a sum of £4 4s. be allowed to the Hon. Sec. annually in order to provide an assistant. This to take effect from the 1st January, 1912. After discussion this was passed.

It was decided to hold the November meeting in Ballymena on Thursday 16th.

A renewal of the discussion on the question of amalgamation took place, when Mr. Johnston moved, and Mr. Gibson seconded, that this Association approve of the scheme proposed by the Committee of the National Veterinary Association.

Mr. Ross proposed as an amendment that the matter be deferred until the return from Dublin of Messrs. Thompson and Jordan, when more definite information might be forthcoming. This was seconded by Mr. McConnell. The amendment having been put to the meeting was carried.

Mr. H. D. Gilmore, Kirkcubbin, had kindly consented to read a paper entitled "Notes on a Few Cases," at this meeting. The Secretary, however, announced that he had received the following wire from Mr. Gilmore:—"Owing to accident deeply regret inability to attend meeting."

On the motion of Mr. Ross, seconded by Mr. McConnell, the Secretary was requested to send a letter of sympathy to Mr. Gilmore. Passed.

After the usual vote of thanks to the President, the meeting terminated.

J. A. Jordan, Hon. Sec.

## SOUTH DURHAM AND NORTH YORKSHIRE VETERINARY MEDICAL ASSOCIATION.

Acting upon the suggestion of the President (Mr. G. R. Dudgeon) given in his Presidential address, that one meeting during his year of office should be of a social character, it was unanimously agreed at a meeting of the Association held on July 7th that an excursion should take place to Middleton-in-Teesdale and Langdon Beck, and a small sub-committee was appointed to make the necessary arrangements. This excursion took place on Friday, July 28th, in perfect summer weather, and it was indeed a happy party of members and their lady friends numbering twenty that left Darlington by the 10.28 a.m. train in a reserved saloon for Middleton-in-Teesdale, which was reached about noon. The members were sternly informed by the President that anybody talking "shop" would be fined five shillings for each offence, and his wishes that professional duties should be left at home were rigidly adhered to for the rest of the day.

On arriving at Middleton-in-Teesdale brakes met the train and conveyed the party to "Ye Cleveland Arms Hotel," where an excellent dinner was partaken of, the worthy President being in the chair.

Previous to dining the church was visited, and through the kindness of the Vicar, who was known to one of the members, an invitation was given to visit his garden, which was much appreciated, lovely views of Teesdale being obtained from it.

After dinner the company was photographed, but owing to the fierce rays of the sun the expression on the faces of many was not considered all that could be desired when the proofs were inspected later on in the

day, many of the ladies appearing rather disappointed that their undoubted beauty of features had not been more clearly brought out.

The brakes were again boarded, and the drive up the beautiful dale resumed. The eight mile drive up to Langdon Beck was perfect, the well kept farm houses, newly whitewashed, on the estate of Lord Barnard, forming a pretty picture against the rich green of the pasture and meadows where haymaking was in full swing, whilst on the Yorkshire side of the dale the outline of the grand hills was clearly defined against an almost cloudless sky, as there was a cool refreshing breeze everything that was to be seen was seen to perfection. A call was made at High Force to view the renowned waterfalls, and as there was a nice volume of water passing over them one saw them almost at their best.

On arriving at Langdon Beck Hotel the more energetic of the party indulged in the old-fashioned game of "rounders" which caused much merriment, and also revealed the fact that one or two of the players were not so sound in their wind as they were twenty years ago, suspicious sounds of "whistling" being heard.

Tea was then partaken of, the bracing moorland air having sharpened the appetites of all. The return journey was commenced about 6.30 just as the sun was setting behind the hills, the beauty of the western sky will not readily be forgotten.

On arriving at Middleton-in-Teesdale complimentary votes of thanks were passed to the President and Sub-Committee for having arranged such an enjoyable outing, all agreeing that this, the first excursion of the Association, had been a huge success, and hopes were freely expressed that a similar excursion should be arranged each year.

Darlington was reached about 9.30 the party then breaking up and going to their respective homes by train or motor car, only sorry that the day had passed all too quickly

J. H. Taylor, Hon. Sec. (*pro tem.*)

## MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at the Grand Hotel, Birmingham, on Wednesday, August 9th. The President of the Association, Mr. H. L. Pemberton, of Bridgnorth), took the chair, and there were also present Messrs. J. J. Burchnall, Barrow-on-Soar; R. Over, A. Over, Rugby; H. Thackeray, Stafford; W. H. Brooke, Handsworth; W. T. Brookes, Warwick; S. D. Woodward, J. Young, W. J. DeVine, C. J. Byner, Birmingham; Parsons, Cheltenham; J. Martin, Wellington; W. Tart, Longton; H. Collett, West Bromwich; J. A. Gold, Redditch; and the Hon. Sec., Mr. H. J. Dawes, West Bromwich.

The visitors present were Messrs. Stewart Stockman, Chief Veterinary Inspector of the Board of Agriculture; H. W. Dawes, West Bromwich; and E. M. Robinson, Kidderminster.

Apologies for unavoidable absence were received from Professors McCall, Dewar, and Hobday, Messrs. E. O'Neill, Ramsey, F. W. Barling, H. B. Hiles, E. Woodcock, J. R. Carless, R. Cockburn, D. Forwell, P. Woolston, Barton, T. H. Hobson, R. C. Trigger, W. H. Brown, J. W. Coe, E. Ringer, F. V. Steward, W. Grasby, H. S. Reynolds, R. Hughes, L. W. Heelis, and others.

The minutes of the previous meeting were read and confirmed.

### Nomination.

Mr. B. L. Secker, of Malvern Links, was nominated for membership of the Association by the Hon. Sec., on behalf of Mr. F. W. Barling, of Ross.

### Recommendations of Council.

The Hon Sec. reported that a meeting of the Council was held immediately prior to this quarterly meeting, Mr. J. A. Gold being voted to the chair in the President's temporary absence. There were also present Messrs. Martin, R. Over, Brooke, the Hon. Treasurer (Mr. Burchnall), and the Hon. Sec. (Mr. Dawes). It was recommended:—

(1) That the next quarterly meeting be held at Leicester.

(2) That the subject for discussion be "Clinical Notes on Cases by Members," the Hon. Sec. to circularise members to ascertain how many will be able to contribute to the proceedings and in what way.

(3) That the invitation to be represented at the annual Congress of the Royal Institute of Public Health at Dublin be declined for this year.

On the motion of Mr. A. Over, seconded by Mr. Woodward, the report of the Council was adopted, and the recommendations contained therein agreed to.

### The Late Mr. W. Carless.

The Hon. Sec. said that since their last meeting they had lost one of the oldest and most respected members of the Association in the person of Mr. Wm. Carless, of Stafford. He always took the liveliest interest in the welfare of the Association, and no one was more regular in his attendance. He was president as long ago as 1883 and since then he had served the office of treasurer. He (Mr. Dawes) was looking through the minutes a few days ago and read the presidential address which the late Mr. Carless delivered when he was in the chair, and it was one of the ablest and most practical that had ever been given. Some of them would remember the Midland Veterinary Debating Society which met once a month for several years, and Mr. Carless came regularly to all the meetings and was most helpful, especially to those of the younger members who had gone to learn. They would all miss him very much and he begged to move that they record their deep sense of his loss, and tender to the family their sincere and respectful condolences.

The President, in seconding, said he had known Mr. Carless for many years as an upright and honourable member of their profession, and one moreover who had a sunny disposition and the happy knack of making friends.

The motion was carried *sub silentio*, the members signifying their assent by standing.

## "THE EPIZOOTIOLOGY OF ANTHRAX."

By Stewart Stockman, M.R.C.V.S.

[Read before the meeting at Wolverhampton on May 9th.]

When I was invited to read a paper on anthrax I was very considerately informed that I might choose for my paper whatever features of the disease I preferred to deal with, for it is evident that anthrax in all its features cannot be dealt with in one lecture. I have chosen the epizootiology of anthrax, and, as diagnosis and prevention are most important parts of epizootiology, I have attempted to deal with them as fully as possible.

### Diagnosis.

In the cases of cattle and sheep the usual history is that one animal has been found dead or in a moribund condition, and that signs of serious illness had not been observed until shortly before death. Anthrax may or may not be suspected by the owner. Anthrax, however, is not always fatal, and inasmuch as several animals may have contracted the disease from the same source, and be less severely attacked, or in different stages of the disease, it is advisable to make use of such clinical aids

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to diagnosis as can be applied on the spot to animals in contact. This applies especially to cows in byres, and it has frequently been observed that some of the contacts to an animal which has died of anthrax show a suspiciously high temperature.

In the cases of horses and pigs there are often certain objective symptoms to guide one, such as swelling of the tissues around the throat, and in the former severe colic. These external lesions are of great value in connection with diagnosis during life and after death, but, while their presence is strongly indicative of anthrax, their absence cannot be regarded as satisfactory evidence that the disease does not exist.

The irrefutable evidence of the existence of anthrax is the presence of the anthrax bacillus in the body fluids or tissues. The blood is the fluid from which preparations can be most conveniently made for microscopical examination, and, since the bacilli seldom invade the blood stream in sufficient numbers to be detectable until the animal is practically moribund, a positive diagnosis follows usually upon the finding of anthrax bacilli in the blood after death. It is seldom indeed that the bacilli have not invaded the circulation in large numbers in cattle and sheep just before death, but very occasionally cases of anthrax are met with in these animals in which a microscopical examination of blood from the peripheral vessels fails to reveal the presence of anthrax bacilli, and other methods of diagnosis have to be employed. In pigs and horses it frequently happens that the animals die of anthrax before the bacilli have invaded the circulation in large numbers, and under such circumstances diagnosis by the microscopical examination alone of smears from the blood in the peripheral vessels often fails. It is advisable in horses and pigs to make smears from a gland near the surface, and from any œdematous fluid which may be present, as well as from the blood.

Given that these methods of examination have been applied with a negative result, there is nothing left except to seek for the cause of death by an examination of the internal organs, still paying due regard to the possibility of anthrax existing, and taking all reasonable precautions against infective material being disseminated. A great deal of importance is often attached to finding a carcase of an animal tympanitic, with blood oozing from the orifices. Without wishing to minimise the importance of this in arousing suspicion of anthrax, I would like to remark that no conclusion can be drawn from its presence or absence. It may happen that this further examination will tend to increase one's initial suspicions. For example, if enlargement of the spleen be found, with a fluid tar-like appearance of the pulp, or if the intestines and lymph glands are markedly congested, anthrax should always be suspected, and smears for further microscopical examination should be made from the altered organs.

A fairly common lesion in pigs, and one of great diagnostic value, is the presence of necrotic areas on the mucous membrane of the pharynx. These vary in size, but are commonly as large as a shilling. The centre is dark, almost black in colour, slightly raised, and the edges are level with the mucous membrane. There is seldom any difficulty in finding anthrax bacilli in preparations made from these areas.

In cattle and sheep anthrax may be confused with black-leg. The local lesions of the latter disease are generally sufficient for differential diagnosis, but it must not be forgotten that in sheep dead of black-leg lesions of the skeletal muscles may be very slight, or even absent. It is sometimes stated that the bacillus of black-leg does not invade the blood stream. This, however, is an error, and the finding in almost pure culture of an appreciable number of bacilli like those of black-leg in preparations made from the blood is almost sufficient evidence to exclude anthrax. In the horse one may be misled during the life of the animal by the belief that it is suffering from serious intestinal trouble. In dealing with the carcase of an animal, however, it is unnecessary to attach a great deal of importance to differentiating finely between the macroscopic lesions of anthrax and other diseases, because if the circumstances or lesions are such as to make one suspect anthrax the question can be decided by establishing the presence or absence of a definitely ascertained microbe; these things are happily no longer the matters of opinion which men of the more ancient clinical school found time to wrangle about.

We have next to consider the methods of establishing the presence of anthrax bacilli in fluids and tissues, and microscopical examination naturally comes first for consideration. I take it, it may be assumed that everybody knows what is meant by a smear, that smears should be made from blood present in the peripheral vessels, such as those at the base of the ear, that they should not be made from blood found oozing from the orifices, that in the cases of the horse and pig it is highly advisable also to make smears from a superficially placed lymphatic gland, and that for bacteriological examination an oil immersion lens is indispensable. The smears are fixed by heating the glass slides over a flame, after the fluid has been dried. Amongst the specimens sent to the laboratory purporting to contain anthrax bacilli a few have been unstained cover-glass smears of blood mounted in balsam, and I have known members of our profession who claimed that they had no difficulty in identifying anthrax bacilli in unstained preparations. This, however, is rapidly becoming a lost art, and one of the penalties we have had to pay for the advance of civilisation is that we must now stain our anthrax preparations. The anthrax bacillus is not difficult to colour with any of the bacterial stains, nor is it difficult to identify whatever be the stain employed, provided the material for the smear has been obtained very soon after the death of the animal and the organisms are fairly numerous. The classical description of the anthrax bacillus in preparations from the blood is: a rod-shaped organism measuring 5 to 8 $\mu$ by about 1 to 2 $\mu$, ends square cut, or showing cup-shaped depressions, consisting of a central rod of protoplasm bounded by a translucent capsule, occurring singly, or in twos or threes joined end to end, but not as long filaments. To see anything very closely resembling the above picture, one must examine perfectly fresh material taken soon after the animal's death. If one expects always to find it in preparations made under the conditions obtaining in the field of practice, the expectation will not be realised. The veterinary inspector frequently does not arrive on the scene until twenty-four or thirty-six hours, or even more, after the animal has died, and it is common knowledge that in this time even the blood in the peripheral vessels may become grossly contaminated by the organisms of putrefaction, especially during hot weather. These organisms, as it were, crowd out the anthrax bacilli, and as some of them, particularly the bacilli of malignant œdema, bear a certain resemblance to anthrax bacilli, the problem of identification becomes more complicated. Further, it is also well known that anthrax bacilli contained in blood, especially under the anærobic conditions obtaining in the blood vessels of an unopened carcase, undergo degenerative changes, and disappear in a variable time. These changes give rise to distorted forms, which, up to a certain point, may aid identification, and beyond that make it more difficult. The central protoplasm may be twisted, shrivelled, and very granular, but the most marked changes are probably observed in connection with the capsules, which may swell up to several times their original size, and assume curious shapes; they may also rupture. Sometimes the protoplasm inside the swollen envelope takes the stain very feebly, giving rise to what may be referred

to as ghost forms. In preparations made from tissue which has been exposed to the air for some little time one may also see anthrax threads of considerable length, made up of bacilli of about equal length joined end to end, and there may even be sporulating forms in warm weather. In the majority of cases, however, the long forms seen in preparations are not anthrax filaments; they are threads of the malignant œdema bacillus, made up of rods of very unequal length, and of greater thickness than those of anthrax when stained in certain ways. Other filaments of bacilli more or less resembling anthrax may also be present when the material has become grossly contaminated.

I have purposely said nothing about motility as an aid to differentiating between anthrax and other micro-organisms, as I consider the manipulations necessary to put it in evidence are too dangerous to be made use of by practitioners. The anthrax bacillus is not motile.

Two methods of staining are particularly helpful in the identification of anthrax bacilli, while certain others should be avoided. First, we may take Gram's method. This is not a good method for staining the anthrax bacillus, as it usually shrivels the protoplasms, renders it very granular, and causes a certain amount of distortion, which may make identification somewhat difficult in certain preparations. On the other hand, it may be usefully employed, when necessary, to distinguish between the anthrax bacillus, which is Gram-fast, and other somewhat similar microbes which are not—malignant œdema, for example. The most misleading stain of all is gentian violet, which is apt to colour the envelope of the anthrax bacillus, giving the rod an unnaturally thick appearance. This increases the difficulty of distinguishing between it and certain other microbes. The now well-known methylene-blue method of staining has the highest diagnostic value of all. As everyone knows, this, as a valuable aid to the identification of anthrax bacilli in preparations made from the blood, was first described by Sir John M'Fadyean. It consists in staining the smears in a 1 per cent. watery solution of methylene blue, and an essential point in the technique is that the smears must be only lightly fixed. The protoplasmic rod stains blue without undergoing distortion, and the capsule, particularly if it has become swollen, takes on a rose-pink colour. Sometimes the material of the capsule becomes massed, and appears in the preparations as small pink islands; at other times the field of the microscope has a pink, peppery appearance. Even after all the rods have disappeared one can often find pink masses in a blood smear.

In my Annual Report for 1905 certain observations on guinea-pigs dead of anthrax were described, in which the pink reaction was obtained eighty-six hours after death, but was not was obtainable 126 hours after death, when the body had been opened; and in another guinea-pig, which had not been opened, a very distinct reaction was obtained in preparations made from the spleen ninety-six hours after death. Since then I have obtained it from scrapings of dried blood from a shed in which the carcase of a cow dead from anthrax had been dressed about a month previously, and I have also obtained it from the spleen of a cow which was exhumed three weeks after death. I do not, however, mean to assert that one can count upon obtaining it at these long intervals after death.

The other aids to diagnosis which one may employ are cultural examination and inoculation. These are methods for the laboratory, but, inasmuch as the laboratory has to depend on the practitioner for material, you will probably desire that I should say something about these methods, and how material should be collected for transmission. When the microscope fails to reveal the presence of anthrax bacilli, or when the material is so grossly contaminated with other microbes that identification of the anthrax bacillus is difficult, inoculation or cultural examination may be resorted to, and it ought to be made use of if the history of the case is suspicious. For inoculation guinea pigs or white mice are usually employed, and one is almost always restricted to the scarification method in order to avoid killing the animals with malignant œdema. Material which is grossly contaminated, or which contains very few anthrax bacilli, sometimes fails to infect by the scarification method, and on this account it seems probable that the cultural method is the more reliable, because the contaminations can be got rid of, and there is no reason to believe that one or two bacilli or spores are not sufficient to start a culture, although they may fail to fatally infect an animal. Agar slopes are inoculated with material from a swab, and placed in the incubator overnight to give any anthrax bacilli which may be present the chance to sporulate. The culture tubes, or material therefrom, are heated in a water bath at 80°C. for half an hour. This kills all the non-sporulating bacteria, which are the majority, and by making cultures on agar slopes from the heated material it is possible to obtain relatively pure or even pure cultures of the anthrax bacillus in a matter of hours. Needless to say, the material sent to the laboratory should be collected as purely as possible.

What is now known as the Strassburg method of collecting material has been strongly recommended by many authorities. In this method pieces of gypsum are soaked in broth, which fills the pores, and they are afterwards sterilised in test tubes and sent out to inspectors. The gypsum is dipped in the suspected material and returned to the laboratory. The theory underlying this method is, that the anthrax bacillus finds the conditions for sporulation in the pores of the gypsum, assuming the temperature to be favourable, and may even have sporulated by the time the material reaches the laboratory. Under the conditions prevailing in Great Britain, however, the simpler method of sending to the laboratory smears and a swab of sterile cotton-wool which has been soaked in the suspected material meets the case. This is the method in use by the Board of Agriculture, and I have brought with me an apparatus which has been designed for collecting and transmitting material.

Members of this Association will probably be surprised to learn that at this late date in the history of a profession which may justly claim to be a scientific profession, there are still men in the position of veterinary inspectors to Local Authorities who are so forgetful of their responsibilities as to send by post, in cigar boxes and other leaky vessels, portions of spleen and other tissues from animals suspected of having died of anthrax. Apart from the moral obligation involved, I think you will agree with me that it would not advance the prestige of the veterinary profession if any one of its members had to answer a charge of contravening the Post Office Regulations in a matter of this kind, or if he were charged with the more serious offence of culpable homicide.

### Epizootiology.

The most important factors admitted or suggested to explain the upkeep and dissemination of anthrax are as follows:—

First. The disease is not disseminated to any important extent by the infected animal during life, but it may arise from a patch of infection established by a previous case on a pasture. It is well known that anthrax bacilli may sporulate under certafn conditions, and that the spores are very tenacious of life; in the laboratory they may remain infective for several years. One does not know definitely, however, to what extent spore formation may occur in blood, etc., deposited on the pastures under the climatic conditions obtaining in Great Britain, and it must be remembered that for several years past it has been customary to avoid the spilling of blood from

animals dead of anthrax. Nor is it known how long the spores of anthrax, granted their formation, may remain capable of infecting after their arrival on the pastures. The available evidence is totally opposed to the view that anthrax arises mainly, or even to a great extent, from previous cases on the same establishment. If it did, one might fairly expect to find the disease frequently repeating itself on the same establishments in the same year and from year to year. This does not happen in Great Britain. The information summarised in Table I from the official records clearly shows that the vast majority of outbreaks (average 83·5 per cent.) occur on farms which have not been previously infected, and it is to be noted that it does not necessarily follow that in the remainder (16·5 per cent.) infection arose from virulent material on the pastures, or from a previous case on the same establishment.

TABLE I.

*Showing Total Outbreaks for Five Years—1902-1906—in six of the Worst Infected Counties in Great Britain, together with the Number and Proportion of Outbreaks on New and Previously Infected Farms*

| County. | Total Outbreaks. | Number on new Farms | Per cent. of Total. | No. on previously Infected farms | Per cent. of Total. |
|---|---|---|---|---|---|
| Aberdeen | 500 | 400 | 80% | 100 | 20% |
| Somerset | 143 | 119 | 83% | 24 | 16% |
| Salop | 125 | 112 | 89% | 13 | 10% |
| Wilts | 78 | 67 | 80% | 11 | 19% |
| Cheshire | 218 | 191 | 87% | 27 | 12% |
| Total | 1064 | 889 | 83·5% | 175 | 16·5% |

By going through the records in the above counties of the 993 farms infected for the first time during the ten years from 1895-1904, I found that anthrax had occurred more than once during that period on 120 farms, that is, on only 12 per cent. of the total.

With regard to the proportion of farms on which anthrax occurred more than once in any one year, the records over a period of twelve years (1895-1906) for the above counties were examined. There were infected for the first time during that period 1388 farms, and anthrax occurred more than once in any one year on only fifty of them (4·6 per cent.) These figures were published in my Annual Reports for 1905 and 1906, and since then the records for all the other counties of Great Britain have been examined with practically the same result. In considering the importance of ground infection one must also weigh the fact that although there have been over 500 outbreaks a year in Great Britain for many years, which must have infected an enormous number of premises, the disease has certainly not increased in proportion, and only a small minority occur on previously infected farms.

Table II. shows the quarterly incidence of anthrax from 1906-10. It will be observed that there is a marked and constant drop in the number of outbreaks in the third quarter of each year, that is to say, at the time when most stock are on grass, and that there is a decided rise when the animals may be assumed to be running in, and receiving artificial food.

Second. It is suggested that the disease is carried by flies.

Many are familiar with the sight of flies feeding on the blood of a carcase which has been opened, and one of the oldest suggestions in relation to infection in the case of anthrax is that it may be carried by flies. In a recent report to the Local Government Board, Dr. Graham-Smith showed that living anthrax bacilli could be recovered from the material which flies regurgitate after feeding, and from their fæces, provided they had fed on anthrax bacilli. Cultures were obtained from the fæces forty-eight hours, and from the crop five days, after feeding. After feeding on spores cultures were obtained up to the twentieth day. This, of course, is not surprising, as we know the spores may live for years. These observations convey the suggestion that flies in the above way disseminate anthrax. I think one must admit that flies could carry infection, but, interesting as Graham-Smith's observations undoubtedly are, there is no important gap in the epizootiology of anthrax which his observations can fill. Further, we have every year a certain number of cases in which men contract anthrax from dressing infected carcases. When this happens it is not those helping, on whom flies may, and do, alight, who contract the disease, but almost invariably it is the man who does the actual cutting, and who has sores on his hands and arms, which come in contact with the blood. Moreover it is quite obvious from Table II. that the number of outbreaks in cattle drops very decidedly during the season in which flies are prevalent.

Third. Infection may be carried by contaminated feeding stuffs brought in from without, particularly by material brought in from countries where anthrax is very prevalent.

The facts brought out in Table I. are strongly in favour of the view that the great majority of outbreaks in this country are due to infection from without. Table III. summarises the information collected in connection with 1257 outbreaks of anthrax on previously clean farms, where ground infection could not have operated. It is to be observed that only those cases in which the diagnosis was beyond question have been taken, and that special inquiries were instituted into the correctness of the history of the premises.

TABLE III.

*Showing Results of Special Inquires into Cases of Anthrax reported from Farms said to be Infected for the First Time* (1905, 1906, 1907, 1908, 1909).

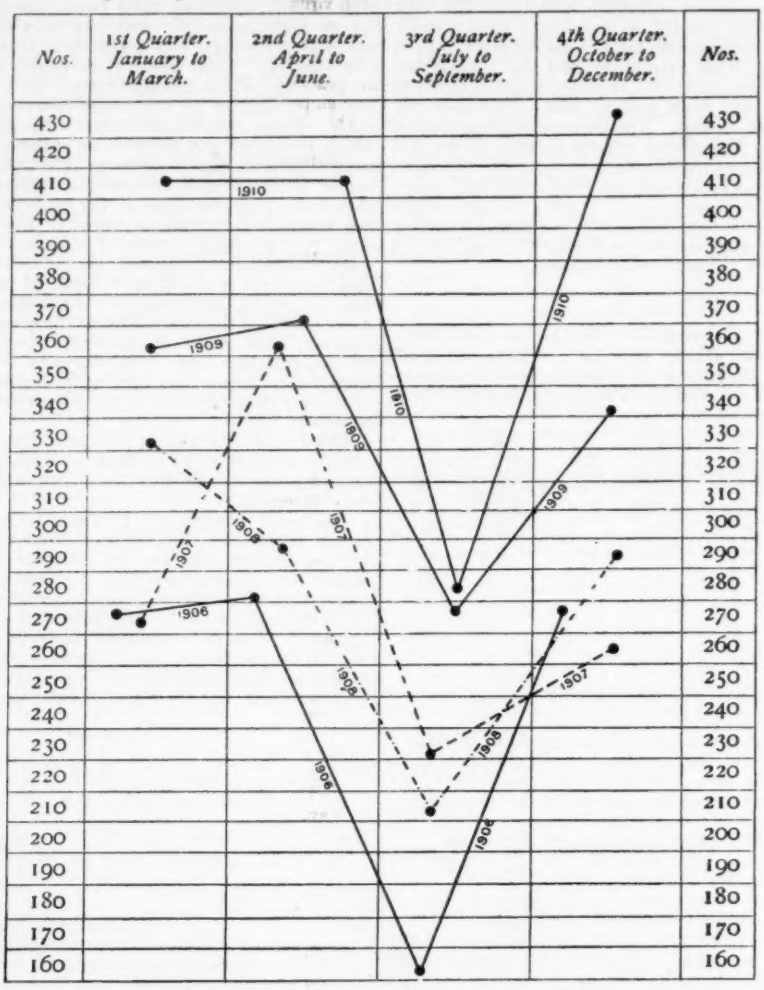
Total cases inquired into 2527. Deduct 1270 cases in which the diagnosis could not be confirmed = 1257.

| | |
|---|---|
| Confirmed cases. Total | 1257 |
| Number of those which on further inquiry might have been due to a former case (*i.e.*, a death under suspicious circumstances was known to have taken place). | 179 (14%) |
| Number of those in which no former history of Anthrax could be obtained after careful inquiry. | 1046 (83%) |
| Number of those in which after careful elimination of other causes the evidence pointed to artificial feeding stuffs or manures | 860 (68%) |
| Number of those in which there was no history of former outbreaks nor of artificial feeding stuffs nor manures | 254 (20%) |

Evidence that food stuffs carry infection is very difficult to obtain under the conditions of experimentation, one reason being that the infected portions have probably been consumed by the dead animal before samples were taken. During the last few years samples of feeding stuffs upon which suspicion rested have been experimentally examined at the Board's laboratory with negative results. Both Sir John M'Fadyean and Mr. Dunstan, M.R.C.V.S., however, have demonstrated experimentally that cake may contain the spores of anth-

TABLE II.

*Quarterly incidence of Anthrax in Great Britain, 1906-1910.*




rax, and the former has isolated the anthrax bacillus from imported oats. These positive results, few as they are, are of the highest importance to the question under discussion, when one considers how enormous are the chances against obtaining them with the small samples it is possible to examine experimentally.

One has next to inquire how feeding stuffs may become contaminated. In the process of manufacture the material from which cake is made is heated to a temperature considerably below the boiling point of water (180 to 200 F.), which is, of course, insufficient to destroy the spores of anthrax. Compound cakes are pressed between metal plates, but the seed from which the other cakes are made is pressed in cloth bags, made from refuse wool and horse hair, to extract the oil. On the assumption that the material used in the manufacture of bagging might infect the cake (shoddy wool and horse hair are frequently infective), about a hundred different samples were examined experimentally at the Board's laboratory, but with negative results. Personally, although I cannot free my mind from the the suspicion that bagging may infect cake, I think the most likely explanation of infection is that the grain or meal in course of transit from countries badly infected with anthrax becomes contaminated by infective material from dry hides, which, on account of their light weight, are often stowed on the top of other cargo. I have known a number of outbreaks follow the distribution of a consignment of Soya beans in a part of the country where previously anthrax was almost unknown. It should also be noted that there is a possibility of cake being contaminated by infected material after it leaves the factory.

Fourth. Infection may be disseminated by bone manure, shoddy manure, and refuse from tanneries, which may be put on the land or allowed to contaminate the water supply.

There is no doubt that the disease is exceptionally prevalent in certain districts where imported hides are tanned and wool is washed, the assumed explanation being that the drinking water becomes contaminated by the sewage from the factories. In the course of inquiry it has also been found that the disease is exceptionally prevalent on certain sewage farms which are known to

receive tannery and knackery drainage. With regard to bone manure, I have not obtained evidence that a large numbrr of outbreaks can be accounted for in this way, and it should be noted that most of the bone manure used in this country has been heated, or submitted to a chemical process amounting to disinfection, before it is used on the land. There are outbreaks, however, in which the circumstantial evidence indicates that infection has been introduced with turuips which have been grown on land manured with crushed bones. Given infected particles of bone in the soil, one can imagine that roots with the earth adherent might be infective.

### Preventive Measures.

In discussing preventive measures in relation to anthrax, I would like to take further advantage of the liberty you have accorded to me of limiting discussion on my part to certain features, for it would not be possible to deal with every side of this question without prolonging the paper beyond reasonable bounds, and I feel I have already overstepped the limits of your patience. I would like to restrict myself to preventive and curative inoculation, as the part of the subject which is of more direct interest to practitioners.

The Pasteur method of preventive inoculation has rendered great service in preserving stock on badly infected farms in various parts of the world. The method consists in injecting the animals with fixed doses of attenuated cultures of the bacillus anthracis. Two injections at intervals of twelve days are performed. For the first injection a very attenuated culture is used (first vaccin), and for the second a less attenuated culture (second vaccin) is employed. Immunity is established about twelve to fifteen days after the second vaccin has been injected. It lasts in cattle about a year, and should be repeated after this period. The great majority of cattle operated on show little more than a temporary indisposition with passing fever after the injection, which may be assumed to indicate a slight attack of anthrax. Occasionally, however, an inoculated animal may die of the disease as the result of the injection, and for this reason the animals undergoing the process of immunisation should be kept in a special paddock, or, better still, in sheds which can be disinfected in event of an accident taking place. In sheep, accidents are more frequent. The operation should only be attempted by skilled persons, who will know the best way to prevent accidents, and adopt measures to limit their consequences should they occur.

Since the operation is not altogether unattended by the possibility of loss, and since it incurs a certain amount of expense, one has to consider under what circumstances it will be worth while undertaking it. It will be obvious from the first that on farms registering only one death annually it will hardly be called for, and that it would be folly to adopt it on clean farms.

It results from observations on several millions of cattle in various parts of the world that accidents occur in about ·5 per cent, of the inoculated taken all round, and that the operation may be expected to reduce the death-rate from anthrax on infected farms to about 1 per cent. or slightly under.

If accidents threaten to occur from the inoculation, they can be avoided to a large extent by giving a dose of anti-anthrax serum. This serum is useful both as a preventive and as a curative agent under certatn circumstances. The immunity following upon an injection of serum is, of course, quite temporary, but it lasts long enough to tide the animals over certain risks. For example, if an animal has died from anthrax amongst other animals and its blood has been spilt, it is advisable to inject the others with serum, and remove them from the infected place if possible. If it is not possible to remove them, it is even more desirable to give each a dose of serum to protect them while disinfection is being carried out. The immunity from serum lasts about ten days. When a case of anthrax has occurred, from infection by cake or from preventive inoculation with virus, for example, and any of the animals in contact show an abnormally high temperature, a dose of serum should be injected. Unless an animal has been very heavily infected, which does not frequently happen in practice, the infection remains local for a long enough period to enable serum to act.

The chances are very much in favour of saving the life of the animal by the use of serum, provided the blood-stream is not yet invaded by the bacilli. Once the blood-stream is invaded, serum is likely to fail.

## PHYSIOLOGICAL PRINCIPLES OF PHYSICAL TRAINING.

By M. S. Pembrey, M.A., M.D.

[Being a lecture delivered to the Sanitary Institute, May 3rd, 1911].

At the present time there is a widespread interest in systems of physical training. This is both a good and a bad sign : good, because it shows the recognition of the need of improvement in the physique of the people ; bad, because it proves that the natural instincts which once guided mankind are becoming lost in the progress of civilisation. Compulsory education has enabled all to read, and nowadays no one can escape reading in the newspapers something of the promises made by the inventors of so-called scientific systems of training. It would appear, from many glowing accounts and testimonials, that almost everv disease can be cured by a course of special exercises. Many readers are mislead, for they think that they are studying science when they gaze upon crude diagrams of the human frame, and read the anatomical names of different parts.

It would be far better if more attention were paid to the teachings of instinct, common-sense, and experience. Anatomy deals with the structure of the dead body, and can never supply knowledge of the processes which occur during life ; it can never be made the basis of any true system of physical training. The first principles must be biological.

At the very beginning of their existence animals have a potential fitness for some special mode of life ; some will become swift runners, others climbers, and others fliers. As they grow they acquire a physical fitness which excites our admiration, and we may well ask how the swallow learnt to fly, or the waterfowl to swim and dive. Here no system of physical training has been handed down by tradition. The opportunity for exercise is all that the animal requires. In healthy young animals, as in children, is inherent the love of games and romps. At first they move in a clumsy and ill-timed manner, but soon they learn by frequent practice how to regulate the sequence and force of the contractions of their muscles. They are not taught by their parents, they learn by themselves, and by their gambols train themselves for the work of their life. Their physical training progresses with their age.

In games, therefore, we can find a natural basis for the physical training of the young. We must accept the teaching of evolution and be guided by experience, for our knowledge of anatomy and physiology in relation to muscular work is too incomplete.

An attempt will now be made to show how much we can learn about the physiological principles of physical training when we examine carefully the experience which has been obtained from games, sport, and work. The first principle is progression. The early practice for a contest is made easy and of short duration, and by gradual stages the subject learns to accommodate him-

self to more and more severe work. The value of progression is recognised by all athletes. The first performance of a definite muscular action is not so economical as the later ones; some muscles are contracted unnecessarily, others are contracted out of their proper sequence, and undue fatigue and soreness are produced. Practice makes perfect, and each man develops as his own the style which best befits the capacities of his body. The authors of systems of physical training insist upon the proper style in which a given exercise should be performed; herein they make a mistake. There is no uniformity in style, and the results of numerous contests on land and water have proved the importance of individuality. No two men are constituted in the same way, and they will not perform a given piece of work in the same way.

Different games, sports, and work require special developments of different muscles. Progressive training produces the necessary effect; muscles respond to work by increased activity and growth. Gymnastic systems lay great stress upon the uniform development of all the muscles. This is uneconomical; no one can become proficient in all forms of work, and a great development of muscles which are not required, is a drawback, producing slowness of movement, a condition known as "muscle bound." If all the muscles are to be uniformly developed, they must be constantly used, otherwise some will atrophy from disuse. So-called uniform development may produce an ideal figure, but the test is not how the man looks but what he can do. The ideal figure is, moreover, a convention, and the fashion changes. At one time the gymnastic ideal produced the soldier with the "pouter chest"; his fitness was sacrificed to appearance. At another time the "strong man" of the music halls was the type, and alertness of mind and body was of little value compared with enormous muscles.

Gymnastic ideals come and go, but nevertheless they do harm. Not long ago it was maintained that during walking and marching the arms ought not to swing with the stride; this was opposed to all physiological knowledge and experience, caused a waste of energy, and impeded the circulation of the blood in the arms.

Uniform development and action are contrary to all we know of division of labour and differentiation of structure. A farm labourer who would march across a ploughed field with the step of a gymnastic instructor is a fool. He does not do it, for he has learnt by experience the gait which is most economical and comfortable. A healthy man who has to carry loads upon his shoulders develops a figure most suitable for his work, even although it is opposed to all the ideals of the gymnastic expert. The test of lifting and carrying sacks of corn will show who is right. Individuality ought to be cultivated, for uniformity results only in degeneration. Games favour individuality; gymnastic systems deadly uniformity.

Muscular exercise influences the whole body, and the different organs react upon each other. It will be convenient, however, to consider the different systems of of the body in relation to physical training.

The *Heart and the circulation of the Blood* must be regarded as the most important factor. A great athlete must have a good heart, but he may have but little mental capacity. The heart pumps the blood through the lungs, and is the most important component in a "good wind," for it is useless to ventilate the lungs unless the blood circulates rapidly enough for the efficient removal of carbon dioxide and the necessary absorption of oxygen. One erroneous idea of some authors of systems of physical training is the expansion of the chest in order to give the heart more room in which to move during work. Their little knowledge of anatomy and physiology has led them astray, for they have forgotten that a vacuum cannot be produced in the chest. Athletes and the trainers of racehorses and greyhounds have learnt from experience the correct way to train the heart. The heart is a muscle, and must be trained progressively. Its rate of contraction varies greatly in different healthy men; some men at rest have a pulse rate of fifty, others of eighty per minute. There is no uniformity, but in all men there is a response to exercise. Muscular work may increase the rate to one hundred and sixty per minute, and thus it will be seen that the man with the slow pulse has the greater range. It is found that many of the best athletes have a slow pulse, and that the general effect of progressive training is to produce a slow beat of the heart during rest, and a more rapid return to this rate after strenuous exercise. A weak heart is not made stronger by the avoidance of muscular work; it should be exercised by slowly increasing the amount of work to be done.

The *Respiratory System* has exerted a peculiar fascination upon the authors of systems of physical training. Do not the lungs take in the life-giving oxygen and discharge the poisonous gas, carbon dioxide? Therefore they maintain that the lungs must be made to do their work more efficiently by special breathing exercises. The air is to be drawn through the nose by a deep expansion of the chest and to be expelled with a blowing noise through the mouth. Such breathing exercises, notwithstanding the fact that they have been approved by the Board of Education, are absurd in theory and useless or even dangerous in practice. The body does not take up more oxygen than it requires however much the lungs are ventilated, and if too much carbon dioxide be removed the subject becomes giddy and stops breathing. Another result of this exercise is that, when a class performs it, the spray of the breath containing any infectious germs, which may be present in the throats of some of the members, is spread broadcast and is inspired by others. It is no wonder that compulsory education and breathing exercises have coincided with numerous epidemics among school-children.

Healthy children do not require teaching how to breathe; they have breathed without the exercise of any thought from the time they drew their first breath. At rest they will breathe through the nose, and during hard exercise they will open their mouths, for the resistance to the passage of the air is thereby diminished. They are right; the extreme views advocated by some teachers of breathing exercises are wrong. It is not necessary to teach healthy children to breathe through the nose; they learnt this at their mothers' breasts. No infant can suckle properly and breathe through its mouth; every intelligent mother who has suckled her child knows that it breathes through its nose, and that trouble arises if the passage of the air is prevented by the pressure of the nose against the breast, or by the accumulation of mucus during a cold.

Athletes and the trainers of racehorses have learnt by experience how to train the lungs. By progressive exercise the respiratory system is stimulated in the natural manner; the muscular work of running produces more carbon dioxide and uses up more oxygen, the nervous system responds to the changes in the blood and the respiratory muscles contract more frequently and forcibly. A further advantage is that the heart is stimulated and trained at the same time.

Special gymnastic exercises have been devised with the purpose of expanding or opening out the chest. The result can often be seen in soldiers who tend to fix their chests in a partly distended condition. There is no reason for such bad exercises. The increased girth of the chest produced in this way is often only apparent, and is due in some cases to a special development of the muscles of the chest, and in others to a forcible displacement of the stomach into the chest. A big chest is no proof of a "good wind," although it is true that healthy men who have led an active life often possess

well-developed chests. The body works as a whole, and a "good wind" can be acquired only by progressive exercise, such as running. This produces those complex chemical and nervous changes which result in deeper and quicker breathing, and a more rapid contraction of the heart.

There is a further serious objection to breathing exercises. The authors of systems do not agree in their teaching; some proclaim thoracic, others abdominal breathing. This lack of agreement one would expect, for the truth is, that the types of breathing vary not only in different individuals, but even in the same individual, according to the conditions involved during rest and work. There is no exact knowledge of the muscles involved in respiration, and dogmatic teaching on the question is a sign of ignorance.

The *Muscular System* must be studied in the living, not in the dead subject. Anatomical knowledge, unbalanced by an education in physiological principles, has had a pernicious effect upon systems of physical training. A knowledge of the names of the bones and muscles is not necessary for a good trainer or instructor. The authors of systems have been misled by their knowledge of anatomy, and have designed exercises to develop each muscle; no postures, however unnatural, have been neglected in the attainment of this end. It has been pointed out already that the uniform development of the muscles is not desirable; muscles which are not constantly used in everyday life do not require excessive development, for an unnecessary drain is thereby made upon all the other systems of the body. Agility and capacity to perform movements smartly cannot be obtained by developing big muscles by special bends, or exercises with dumb-bells or heavy weights.

No man can be trained in any special manner by a course of exercises designed to develop one by one his different muscles. If he wishes to become a runner he must practice running; if he will become a good oarsman he must row; is he must perform any given work efficiently he must learn by doing it. This has been the English method; the work is done, the theory may or may not come later.

The *Nervous System* is concerned in all muscular work, and derives far more advantage from games and sport than from drills and gymnastic exercises. Games and sports are pursued for their own sake, for the pleasure and interest which they afford. It is a morbid taste, which makes a man use a so-called "exerciser" attached to the door of his bedchamber, because it has been suggested to him that by so doing he will learn how to live and how to escape disease. The suggestion may do him good, and any exercise is better than none at all.

The sportsman, be he a man or a boy, does not consider whether his sport will prolong his life; on the contrary, he ignores warnings that it will ruin his health or cost him his life. He pursues his game because he likes it; he has not become so civilised that he has lost the primitive instincts how to live as a man. He learns by experience to rely upon himself, to meet unforeseen emergencies, and trains his eye and sense of judgment.

There is always a medicinal flavour about drill and gymnastic instruction. It is a corrective. There is a sense of restraint, a suppression of the personal equation, an undue fatigue due to muscles unnaturally used, and to the conflicting nervous impulses produced in response to orders. There is no purpose in view in many of the Swedish exercises except the medicinal. This does not appeal to the English man or boy; in fact, in some schools one hour's drill is given as a punishment.

The nervous system is stimulated by games in the open air; the exposure of the skin to cold and wind produces a tonic effect which is wanting in the drill-hall or gymnasium. Immunity to the effects of changes of weather, to the dangers of chills and colds, can be obtained best by open-air exercise in all weathers. Colds are infectious diseases, and are more liable to spread in closed rooms than in the open air. The dust of the floor and of the mats in a gymnasium is a source of danger which requires more recognition. Insistence upon the importance of exercise in the open air will do much to mitigate the evils of gymnastic courses, for it imposes an obstacle to the erection of gymnastic furniture.

The *Digestive System* is benefited by muscular work, for a greater appetite is produced and nutrition is improved. No special limitations in the nature and quantity of the food are necessary; likes and dislikes are in the long run the best guides of a healthy child or adult. The man who takes sufficient daily exercise runs no risk of becoming corpulent when he eats as much as he desires. One never sees a fat constable in rural districts, but in the City, on "point" duty, such officers can be found without difficulty.

It is recognised by trainers that severe exercise should not be performed directly after a heavy meal. A more active circulation of the blood is required by the abdominal organs during digestion, and this would conflict with a similar need upon the part of the muscles during severe exercise. The result would be impaired efficiency of both systems.

The *Cutaneous System* plays an important part during exercise, for the secretion of sweat and the flushing of the skin with blood lower the temperature of the body. The skin is, moreover, the largest sensory area of the body, and exercise in the open air exposes it to heat and cold. In such a manner accommodation to changes of temperature is acquired. This is often known as the "hardening process," and it possesses a sound basis.

It is an advantage to push exercise to the stage of sweating, for thereby the regulating powers of the body are trained, and the skin is cleansed in a natural manner. The labourer who lives by the sweat of his brow is much cleaner than one would expect from his meagre use of baths.

A detailed consideration of the effects of muscular exercise upon all the organs of the body would be impossible, on the grounds of want of both space and knowledge. There are, however, a few more points which must be mentioned. The living body is constantly compared to a machine, and the effects of work are considered from that point of view. It is forgotten that the body is more wonderfully and perfectly made than any machine. It possesses the power of self-adjustment and of repair; with use it grows and becomes stronger, and at the same time more economical in its working. It cleanses itself and is self-guided to supply the energy requisite for its work. It has a range of adaptation to different kinds of work, and a duration of life far greater than the capacities of any machine.

Another question to consider is the significance of fatigue, muscular soreness, and pain. These are not evils, but warnings which protect the body from damage. The natural response to such sensations is rest and sleep, time is given to the processes of restoration. On the other hand, the best method of inducing healthy sleep is muscular fatigue of moderate degree; muscular exercise cannot be taken without nervous activity, but severe mental work is often unaccompanied by muscular activity sufficient to produce those complex chemical changes which accompany healthy fatigue. One of the factors in fatigue appears to be the presence of poisonous substances, or toxins, in the tissues. By exercise the body is trained to combat the early onset of these effects, and a great power of resistance can be acquired.

It might appear from the previous remarks that games and sports are free from defects. Such is not the case. Although progression is recognised, far too much importance is attached to records. In a race the man who comes in first is considered the victor and the best man. This is a bad test. The condition of the man at the end of the contest is an important factor which is not re-

corded by the stop-watch. In some contests, such as *The Daily Telegraph* Cup for marching and shooting, this is recognised. A soldier who has marched or run himself out is not steady enough to shoot straight.

Although there are games and sports suitable for all ages and degrees of physical fitness, many men and women who live somewhat sedentary lives unwisely devote their holidays too vigorously to muscular exercises. They have not been trained sufficiently, and they may be so overstrained and fatigued that their holidays do them more harm than good. Time is required for accommodation to any great change in life, and a man who is going for a tour on his bicycle, or will row or climb during his holidays, would derive far more pleasure and benefit if he devoted some of his time beforehand to progressive training.

Diet is often a stumbling-block in the way of trainers and athletes, and, owing to the special pleadings of some writers for the daily press, fashions in diet arise. There is no standard food; what is good for one is bad for another. A healthy man is guided by his likes and dislikes, and the man is a degenerate who requires to be taught by his newspaper how, when, and what he should eat. A man in training for a severe contest should take as much simple food as he can enjoy, but he should not be dieted according to any rigid rule. The condition known as "staleness" appears to be due to a rigid insistence upon some definite diet during training. A man can learn only from experience what diet suits him best.

There is a general opinion among athletes and trainers that alcohol and tobacco are liable to do more harm than good. The use of these drugs is an acquired habit, and abuse often occurs. There is evidence that efficiency in the performance of muscular work is diminished, and that the accommodation of the heart is impaired by their use. Too narrow a view, however, must not be taken, for it is often found that an excess of virtue is accompanied in many cases by a lack of manliness. The sudden prohibition of moderate drinking and smoking may cause so much discomfort and discontent that there is no compensation.

Much has been written concerning the danger of injury during certain games and sports. The alarm has been sounded chiefly by those who do not recognise that the bad results must be taken with the good. The result as a whole is excellent, both from a moral and a physical standpoint, and the death or injury of a few individuals is far less serious to the race than the loss of manliness. The discipline of most games and sports is so good in this country, that there is little risk of wilful injury of one competitor by another.

In conclusion, it is only fair that some credit should be given to gymnastic systems. They do good to those who will not take exercise in the form of games and sport, for they include many excellent features such as climbing, jumping, and balancing. Gymnastic exercises can be organised for large classes, and for the purpose of discipline, but they require revision. It is to be hoped that the systems might be developed in this country in two divisions, one consisting of exercises of the nature of games and sport for the sake of the healthy; and another of corrective exercises performed under medical supervision for the cure of defective development or deformities. Such a change would be in conformity with the national characteristics of this country, and with the teaching of sound therapeutics.

## DISEASES OF ANIMALS ACTS 1894 TO 1910, SUMMARY OF RETURNS.

| Period. | Anthrax. Outbreaks Confirm'd | Anthrax. Outbreaks Reported | Anthrax. Animals Confirm'd | Anthrax. Animals Reported | Foot-and-Mouth Disease. Outbreaks | Foot-and-Mouth Disease. Animals. | Glanders (including Farcy) Outbreaks | Glanders (including Farcy) Animals. | Counties Affected Animals Attacked | Sheep Scab. Outbreaks | Swine Fever. Outbreaks. | Swine Fever. Slaughtered. * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GT. BRITAIN. Week ended Aug. 12 | 11 | | 15 | | | | 3 | 3 | | | 45 | 654 |
| Corresponding week in 1910 | | 19 | | 22 | | | 8 | 52 | Hants 1 | 2 | 17 | 185 |
| Corresponding week in 1909 | | 23 | | 27 | | | 8 | 16 | | | 26 | 218 |
| Corresponding week in 1908 | | 11 | | 12 | | | 8 | 74 | Middlesex 1 | 3 | 24 | 250 |
| Total for 32 weeks, 1911 | 534 | | 666 | | 7 | 420 | 120 | 297 | Surrey 1 | 305 | 1659 | 19355 |
| Corresponding period in 1910 | | 925 | | 1121 | 2 | 15 | 225 | 713 | | 331 | 927 | 8424 |
| Corresponding period in 1909 | | 848 | | 1130 | | | 354 | 1310 | | 464 | 1169 | 10404 |
| Corresponding period in 1908 | | 709 | | 952 | 3 | 112 | 513 | 1632 | | 636 | 1397 | 7664 |

Board of Agriculture and Fisheries, August 15, 1911.

| | Parasitic Mange (outbreaks) |
|---|---|
| IRELAND. Week ended Aug. 12 | 2 |
| Corresponding Week in 1910 | 2 |
| Corresponding Week in 1909 | 1 |
| Corresponding Week in 1908 | 3 |
| Total for 32 weeks, 1911 | 47 |
| Corresponding period in 1910 | 43 |
| Corresponding period in 1909 | 63 |
| Corresponding period in 1908 | 29 |

| | Anthrax. Outbreaks Confirm'd | Anthrax. Outbreaks Reported | Anthrax. Animals Confirm'd | Anthrax. Animals Reported | Foot-and-Mouth Disease. Outbreaks | Foot-and-Mouth Disease. Animals. | Glanders (including Farcy) Outbreaks | Glanders (including Farcy) Animals. | Sheep Scab. Outbreaks | Swine Fever. Outbreaks. | Swine Fever. Slaughtered. * |
|---|---|---|---|---|---|---|---|---|---|---|---|
| IRELAND. Week ended Aug. 12 | 1 | 5 | ... | ... | ... | ... | 2 | 4 | 3 | 18 | |
| Corresponding Week in 1910 | ... | ... | ... | ... | ... | ... | 2 | 1 | 2 | 32 | |
| Corresponding Week in 1909 | 2 | 2 | ... | ... | ... | ... | 1 | ... | 3 | 4 | |
| Corresponding Week in 1908 | ... | ... | ... | ... | ... | ... | 3 | 1 | 1 | 14 | |
| Total for 32 weeks, 1911 | 7 | 12 | ... | ... | 2 | 3 | 47 | 250 | 84 | 1477 | |
| Corresponding period in 1910 | 5 | 8 | ... | ... | 1 | 2 | 43 | 345 | 69 | 1658 | |
| Corresponding period in 1909 | 5 | 5 | ... | ... | ... | ... | 63 | 305 | 78 | 1326 | |
| Corresponding period in 1908 | 5 | 8 | ... | ... | ... | ... | 29 | 272 | 127 | 2711 | |

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Aug. 14, 1911

NOTE.—The figures for the Current Year are approximate only.

* As Diseased or Exposed to Infection

## Inspection of Show Dogs.

Trouble seems to have arise between the Kennel Club Committee and the veterinary surgeons with reference to the examination of dogs at dog shows. At a big London show last month the veterinary surgeons refused to allow a number of dogs admittance, because of the signs of some disease.

It appears now that two dogs belonging to one kennel were found to be suffering from some skin disease, and two veterinary surgeons who examined them came to the conclusion that it would not be safe to allow them to be benched.

The owner, not being satisfied, lodged a complaint at the Kennel Club, but in his complaint only mentions one dog, while the veterinary surgeons in their report mention both dogs, and say that, in their opinion, as the two dogs came from the same kennel it was not safe to admit either to be benched.

It seems extraordinary that the Kennel Club Committee, in upholding this exhibitor in his contention that the one dog was not suffering from the skin disease, fail to mention about the other dog.

If the Kennel Club Committee overrule one of their own rules, how can they expect the general body of exhibitors to abide by laws made by them.

If the Kennel Club Committee do not stand by the veterinary surgeons—and the veterinary staff at this show were all men with long experience and specialists in the diseases of dogs—what assurance can exhibitors have that dogs suffering from all sorts of diseases will not be benched at these large shows. It would simply mean that large dog shows would become a hotbed of canine diseases.

The dogs at any of these large shows, where 1,500 to 2,000 dogs are benched, are worth from £150,000 to £200,000, and numbers of these dogs would lose their lives simply because the veterinary examination had become a farce, examining "vets" not having the power to refuse a dog they suspected was diseased.

It is in the early stages of most canine diseases that infection is most probable. In distemper for instance, it is in the early stage that contagion is dangerous, and all the authorities on this disease state that the dog should be at once isolated.

This question is a most important matter for exhibitors, and for the general public at large. It is a well-known fact that a person handling a dog in the early stages of distemper can carry the disease for such a time that any dog being handled afterwards—though it may be some hours later—would in all probability contract the disease.

### The "Vet's" Defence.

The veterinary surgeons in their report distinctly say that if they had permitted these two dogs to be benched they would have been guilty of gross negligence and unworthy of the confidence of the exhibitors.

If any exhibitors had lost a dog through the "vets." allowing a dog to be benched, knowing full well that he was suffering from a contagious disease they would be liable to be prosecuted, and and the exhibitor could claim the value of the dog.

Further, they would, under the veterinary surgeons' rules, be liable to be struck off the rolls of the Veterinary College.

In face of all this, the Kennel Club Committee inform these veterinary surgeons that, in their opinion, the dog mentioned was not suffering from any skin disease of a suspicious character, and that the owner was justified in bringing his complaint before them.

RELWOF.

—*The Evening Times.*

## College Crest Appeal Fund.

Dear Sir,

I herewith enclose list of subscriptions received towards the Fund. May I ask those of your readers who have promised subscriptions to forward them as soon as possible. I am informed that the L.C.C. has retained an eminent counsel for the case, and it is very desirable that our preparations for the defence of our privilege should be adequate.—Yours faithfully,

HAROLD A. WOODRUFF.

Royal Vet. Coll., Camden Town.
August 16.

LIST OF SUBSCRIHTIONS.

| | | | |
|---|---|---|---|
| The National Veterinary Association | £5 | 5 | 0 |
| Publishers of *The Veterinary Journal* and *Veterinary News* | 2 | 2 | 0 |
| Mr. William Bower | 1 | 1 | 0 |
| F. G. Sampson | 1 | 1 | 0 |
| James Gosling | 1 | 1 | 0 |
| William Hunting | 1 | 1 | 0 |
| W. E. Ison | | 10 | 6 |
| Charles Roberts | | 10 | 6 |
| Arthur Jacobs | | 5 | 0 |
| | £12 | 17 | 0 |

## OBITUARY.

THOS. G. SHERWOOD, M.R.C.V.S., New York City, U.S.A. Graduated, Glas: April, 1883.

Veterinarians, not only in New York City, but throughout the country, will be shocked to learn of the sudden and violent death, on July 24, of Dr. Thos. G. Sherwood, of New York, who has long been recognised by his colleagues in that city and generally as an authority on canine diseases. Dr. Sherwood was driving an automobile, accompanied by his wife, when the machine skidded and plunged over an embankment. Mrs. Sherwood sustained cuts on the hands, face and body, and suffered from shock; but was not seriously injured. —*A. V. Rev.*

WM. WORTHINGTON, M.R.C.V.S., Wigan, Lancs. Edin: April, 1863.

Mr. Worthington died on August 8th at "The Glen," Shevington. Aged 70 years.

## Personal.

Prof. W. O. WILLIAMS, of Liverpool, has been appointed Veterinary Referee to the forthcoming Dublin Horse Show.

With reference to the announcement from Capetown that, after exhaustive experiments conducted in Griqualand East, a method had been discovered of rendering cattle immune from East Coast fever, we learn that the veterinary surgeon in question is Mr. F. Chambers, son of Alderman T. Chambers, M.R.C.V.S., of Dudley. It will be remembered that he had a brilliant college career.

The decision of Dr. J. G. Rutherford, C.M.G., to forsake the Department of Agriculture, for the broader and more ambitious field of politics, will be heard with a feeling of pleasure, tinged with regret. Although the great and growing province of Alberta, which it is said will be the scene of his political activities, needs men with the weight, vision and statesmanship of J. G. Rutherford, yet Canada as a whole can ill afford to lose the services and genius of the man who has so faithfully and capably filled the position of live stock commissioner of the country during the past few years.

Countless instances could be related of his genius and

ability in righting live stock troubles that promised to blight the great pursuit. Perhaps one of the greatest tributes to his worth as a man and a servant of the agricultural interests of the country was witnessed last week when a delegation composed of the leading live stock men of the country waited upon him in a last vain effort to have him reconsider his determination to resign. The clamor which has gone up from the farmers from one end of the country to the other, and the hundreds of communications to the Minister of Agriculture asking that his resignation be not accepted, attest his worth and popularity.

What will be Canada's loss will be Alberta's gain. For few men in Canada have a broader grasp of national politics. His health was never better, and therefore it is hoped that the province to which his great gifts will in the future be devoted will enjoy and appreciate his services.—*The Ottawa Evening Journal.*

## PROFESSIONAL FEES.

Sir,

Your correspondent "Rusticus" candidly admits he does not keep an infirmary, therefore the conclusion must be come to that he does not know anything about the conditions of keeping one, As a rule the most caustic critics are those who know nothing about the subject they criticise. "Rusticus" insinuates my letter was prompted by spite and stupidity, but does this not again show his ignorance, especially as Mr. Pope neither mentioned the name nor address of the "successful firm."

It is not a question how much an animal costs to keep, but how much should a veterinary surgeon charge for his skill and trouble that he might live reasonably and allow his *confrères* a chance in the struggle for existence. The motto of the older Englishman was, and that of the modern trade unionist is—"Live and let live." This motto has been well illustrated during the past week, where the British workman has shown "Unity is strength."

Is it not more remunerative to visit a cat or a dog at 2/6 (many charge 5/- and upwards) than keep and treat one with a certain amount of trouble and perhaps the risk of damage to one's reputation at 4/6 per week? Again, is it not more economical and profitable to castrate one colt at 10/6 than perform on two for 5/-, or even 3/6 each? The avaricious man will do it at any price so as to keep his neighbour out. Such a one even sometimes takes in non-professional pupils and teaches them castration, etc., for a fee, and then turns them adrift to compete with neighbouring practitioners. I hope "Rusticus" is not like this. However, unqualified men and quack medicine vendors often charge more than duly qualified and registered practitioners.

The probable explanation of the fee of 10/6 as charged by Mr. Pope is, this gentleman gives more time and attention to his patients and spends more on space, soap, and water than his *confrères* who charge 4/6.—Yours, etc.,

"Vis Unita Fortior."

## REMEDIES FOR FLIES.

Sir,

Oil of sassafras possesses marked insecticidal properties. It contains on an average 80 per cent. of Safrol, with small amounts of Pinene, Phellandrene, together about 10 per cent.; Dextrocamphor 7 per cent., Eugenol about 0·5 per cent. and Cadinene.

Camphor oil is the most common adulterant of Sassafras oil, as it contains all the constituents of the latter.

An unusual case of poisoning by Oil of Sassafras is recorded in *The British Medical Journal*, February 25, 1911. The oil was applied rather copiously to the back of a healthy Scottish terrier dog which had become infected with pediculi, and the application was repeated several times during about a week. The result on the dog was to make him ill, and he refused his food and became very weak.

A veterinarian who was called in told the owner that he thought the dog was poisoned and that he had seen two similar cases to this one. In all three cases absorption had taken place through the skin and not by the dog licking himself.

The dog eventually died about a week after the last application of the oil. Post-mortem it was found that the liver and kidneys were congested, the former being considerably enlarged.

Another useful insecticide is Ol. Betulæ alb. (B P.C.) which is non-sticky and easily incorporated with lard.

To clear stables, cowsheds, and other places of flies, the following solution should be placed in shallow trays in various parts of the building:—Solution of Farmaldehyde 6, beer 13, and simple syrup 1. The latter remedy was given in *The Pharmaceutical Journal* recently.—Yours, etc.,

W. J. Young, F.R.C.V.S., D.V.S.M. (Vict.)

Sheffield, Aug. 14.

## SHEEP AND WATER SUPPLY.

Sir.

I should like to call the attention of some of the readers of *The Veterinary Record*, especially veterinary students and newly qualified men, to the discussion on Prof. Craig's excellent paper—"Some notes on the passage of fluids through the stomachs of ruminants," delivered before the Veterinary Medical Association of Ireland. The report of this meeting was in your last week's issue, Aug. 12.

In the discussion, Mr. Howard said "it is a common thing to find sheep in various parts of Ireland that have never been known to have a drink of water, and they do well and are perfectly healthy."

Mr. A. Watson said that, "he thought he was right in saying that sheep as a matter of fact did not drink water. It was a symptom that they were unwell when they took to water."

I consider the above expressions erroneous and misleading, more so because they have been used by two well known veterinary surgeons. I really think that unless we have fair knowledge of the natural habits of the animals we treat, we are of very little use to our clients. On the other hand, if we have a real knowledge of the natural mode of living of our patients, this knowledge in time "converts itself into practical power." I hope Mr. Wallis Hoare in his book on Veterinary Medicine will deal more fully with sheep than the books which we have already seen on veterinary medicine.

May I tell Messrs. Howard and Watson that there are hundreds of sheep in this neighbourhood suffering through the lack of water supply on the pastures, One of the most important questions of the sheep farmer is about the water supply on the farm, especially on a summer like this. At the time of writing this short letter, I see several thirsty ewes imbibing at a little stream which runs through one of our fields. During a dry summer like this, water is as essential to sheep as it is to cattle, although they don't get access to it as often as cattle.

If any reader doubts the accuracy of the above statements, I should like him to drive a flock of sheep along the road near a running brook, and notice whether they will drink of the water. As sheep are very timid little animals, the dog ought to be kept a good distance from them.

The stomach of the sheep contains as much fluid contents when opened, as the stomach of the ox, in proportion to the size of the animals. Again, the sheep perspires more than the ox (according to some physiologists the ox does not perspire, this theory is absurd, which I hope you will all agree). Therefore if the same quantity of fluids (in ratio to the size of each animal) is found in the stomach of the sheep and the ox, whilst the sheep perspires more than the ox, the sheep according to every reasoning, must drink as much, if not more water than the ox.

I hope this short letter by one who has been managing a large flock of sheep for twenty years, will stimulate some of our members to bring an interesting paper on sheep before our Veterinary Associations, the same as Professor Craig did.—Yours faithfully,

"Kerry Hill."